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## 2000 GORDON RESEARCH CONFERENCE

on Nanostructure Fabrication

### FINAL PROGRESS REPORT

Office of naval Research  
N00014-001-0235

The Gordon Research Conference (GRC) on Nanostructure Fabrication was held at Tilton School, Tilton, New Hampshire, July 23-28, 2000. The conference was well attended with 124 participants (list enclosed). The attendees represented the spectrum of endeavor in this field coming from academia, industry, and government laboratories, both US and foreign scientists, senior researchers, young investigators, and students.

In designing the formal speakers program, emphasis was placed on current unpublished research and discussion of the future target areas in this field. There was a conscious effort to stimulate lively discussion about the key issues in the field today. Time for formal presentations was limited in the interest of group discussions. In order that more scientists could communicate their most recent results, poster presentation time was scheduled. In addition to these formal interactions, "free time" was scheduled to allow informal discussions. Such discussions are fostering new collaborations and joint efforts in the field (program enclosed).

I want to personally thank you for your support of this Conference. As you know, in the interest of promoting the presentation of unpublished and frontier-breaking research, Gordon Research Conferences does not permit publication of meeting proceedings. If you wish any further details, please feel free to contact me. Thank you.

Christie Marrian  
Conference Chair

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# Nanostructure Fabrication

July 23-28, 2000  
Tilton School  
Tilton, New Hampshire

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Visit the [Conference Home Page](#) for more information.

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## Topics and Speakers

### **Nano/Biotechnology**

Discussion Leader: Terry Michalske, Sandia National Laboratories

Andy Ellington, University of Texas: *Aptazymes as Molecular Switches for Nanoscale Devices*

Rich Colton, Naval Research Laboratory: *Novel Biosensors based on Force Discrimination between Molecules*

### **Microcontact Printing**

Discussion Leader: Fabian Pease, Stanford University

Clivia Sotomayor Torres, University of Wuppertal: *Nanoimprint Lithography, Polymer Aspects and Optoelectronic Applications*

Grant Willson, University of Texas: *Step and Flash Imprint Lithography: A low Cost Alternative for Nanostructure Fabrication*

Steve Chou, Princeton University: *Advances of Nanoimprint Lithography and Applications*

### **Nanoelectronics**

Discussion Leader: Don Tennant, Bell Laboratories, Lucent Technologies

Rafael Kleiman, Lucent Technologies: *Exploring the Limits of CMOS Technology with Scanned-Probe Microscopy*

Shen Tsai, NEC Fundamental Research Laboratories: *Quantum Computing in Nanostructures*

### **Limits in Lithography**

Discussion Leader: Scott Mackay, SEMATECH Frances Houle, IBM Almaden Research Center: *Chemistry and Physics Controlling Nanoscale Pattern Formation in Polymeric Resists*

Alex Liddle, Bell Laboratories, Lucent Technologies: *Fundamental Physics in High-Throughput Projection E-Beam Lithography*

Greg Cardinale, Sandia National Laboratories: *Printing at EUV Wavelengths*

### **Molecular Electronics**

Discussion Leader: Paul Campbell, Naval Research Laboratory Phaedon Avouris, IBM T.J.

Watson Research Center: *Carbon Nanotube and Silicon Nanoelectronics*

Mark Reed, Yale University: *Is the Future in Plastics?*

### **NanoMechanical Systems**

Discussion Leader: Dustin Carr, Bell Laboratories, Lucent Technologies

Lidija Sekaric, Cornell University: *Nanomechanical Resonant Structures in Silicon-based Materials*

Mike Roukes, CalTech: *Nanomechanical Systems: Fabrication, Applications, & Ultimate Limits*

Peter Vettiger, IBM Zurich: *Millipede - A Highly Parallel AFM-based Data Storage System*

### **Low Dimensional Structure**

Discussion Leader: Harold Craighead, Cornell University

Horst Stormer, Columbia University: *Things on the Edge*

Don Eigler, IBM Almaden Research Center: *Things in the Middle*

### **Magnetic Media and Nanostructures**

Discussion Leader: Dawn Bonnell, University of Pennsylvania Caroline Ross, Massachusetts Institute of Technology: *Magnetic Behavior of Lithographically Patterned Magnetic Arrays*

Bruce Terris, IBM Almaden Research Center: *Patterned Magnetic Media for High Density Storage*

Angela Belcher, University of Texas: *Biologically Mediated Directed Nanocrystal Assembly*

### **Plenary Session**

Discussion Leader: Dieter Kern, University of Tuebingen

Theresa Mayer, Pennsylvania State University: *Field Induced Alignment of Nanowires*

Ralph Joerger, University of Uppsala: *Silver Accumulating Bacteria*



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